United States Environmental Protection Agency

Solid Waste and Emergency Response (5502G)

EPA 520-F-94-006
Winter 1994

&EPA Superfund At Work

Hazardous Waste Cleanup Efforts Nationwide

Bailey Waste Disposal Site Profile

Site Description:
A former fishing camp converted to hazardous waste site

site **Size:** 10 acres on 280-acre property

Primary Contaminants:
Volatile organic compounds, aromatic and chlorinated hydrocarbons, and polycyclic aromatic hydrocarbons

Potential Range of Health Risks:
Direct contact with contaminated soil or sediments could increase risk of cancer

Nearby Population:
7,600 people within three miles

Ecological Concerns:
Contaminated wetland habitat for fish, shellfish, and estuarine animals

Year Listed on NPL: 1986

EPA Region: 6

State: Texas

Congressional District: 2

Success in Brief

Saltwater Marshland Preserved on Texas Coast

The U.S. Environmental Protection Agency (EPA), the Texas Natural Resource Conservation Commission (TNRCC), and 10 private companies have succeeded in suspending serious environmental damage at the Bailey Waste Disposal Site. This one-time recreational fishing camp in Orange County, Texas served as a dumping ground for local refinery, industrial and municipal wastes throughout the 1960s. An estimated $15.2 million will be needed to effectively consolidate and entomb these wastes. Through EPA's Superfund program, the cleanup will prevent the spread of hazardous petroleum compounds and heavy metals into valuable wetlands leading to the Gulf of Mexico.

Major features of the effort included:

- a negotiated mixed funding arrangement whereby liable parties agreed to conduct a substantial portion of the work;
- cost recovery of $300,000 for expenses EPA incurred for site studies and analyses; and
- an opportunity for this under-appreciated ecosystem to recover losses in habitat and estuarine populations.

EPA's Superfund program brought together the right mix of state officials and private parties to address natural resource damages. Their cooperative efforts have ensured the efficient remediation that is currently under way.

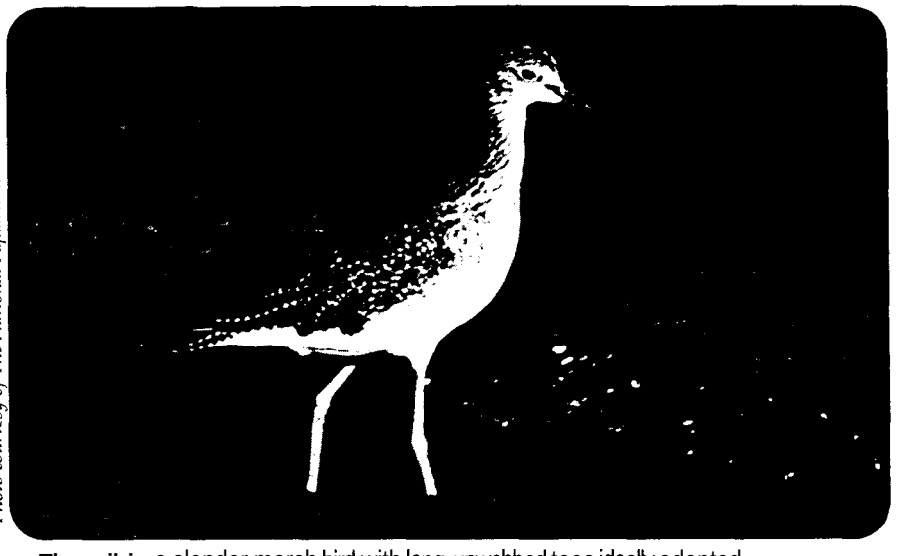


Photo courtesy of The National Aquarium

The rail is a slender marsh bird with long, unwebbed toes ideally adapted for running through soft mud and dinging to reeds.

The Site Today

The Bailey Task Force began stabilizing and solidifying wastes in two channels on the site in August 1992 with completion expected by 1994. The solid masses will then be covered with layered clay and earthen caps.

The Remedial Project Manager is supervising the work under terms of a negotiated settlement document called a consent decree. EPA attorneys continue to pursue non-participating waste contributors for additional cleanup costs.

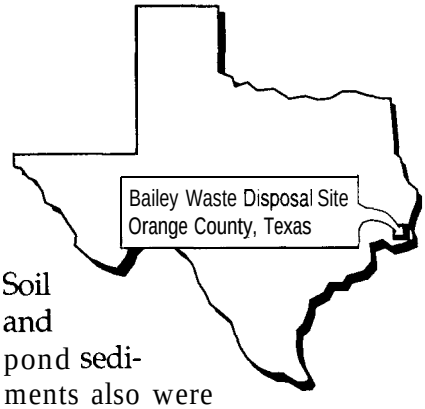
A Site Snapshot

The Bailey Waste Disposal Site is in the eastern coastal marshlands of Texas where fresh water turns brackish en route to the Gulf of Mexico. Converted from a recreational fishing camp to a dump for hazardous wastes, the site is located three miles southwest of Bridge City in Orange County, Texas. The surrounding industrial area is called "the golden triangle" and includes parts of the towns of Port Arthur, Beaumont and Orange.

The disposal area is near the confluence of the Neches River and Sabine Lake and lies within the river's floodplain. Because of the proximity to the coast, the entire area is subject to frequently changing weather conditions. The nearest residence is 1.5 miles from the site; approximately 7,600 people live within three miles.

During the mid-1950s when the site was a fishing camp, two rectangular ponds were constructed for game fish habitat. In 1961, after a hurricane flooded the ponds with salt water and killed the fish, parts of the site were used for the disposal of industrial and municipal waste. This practice continued until the 280-acre site closed in 1971. Subsequently, 10 acres were found to be polluted.

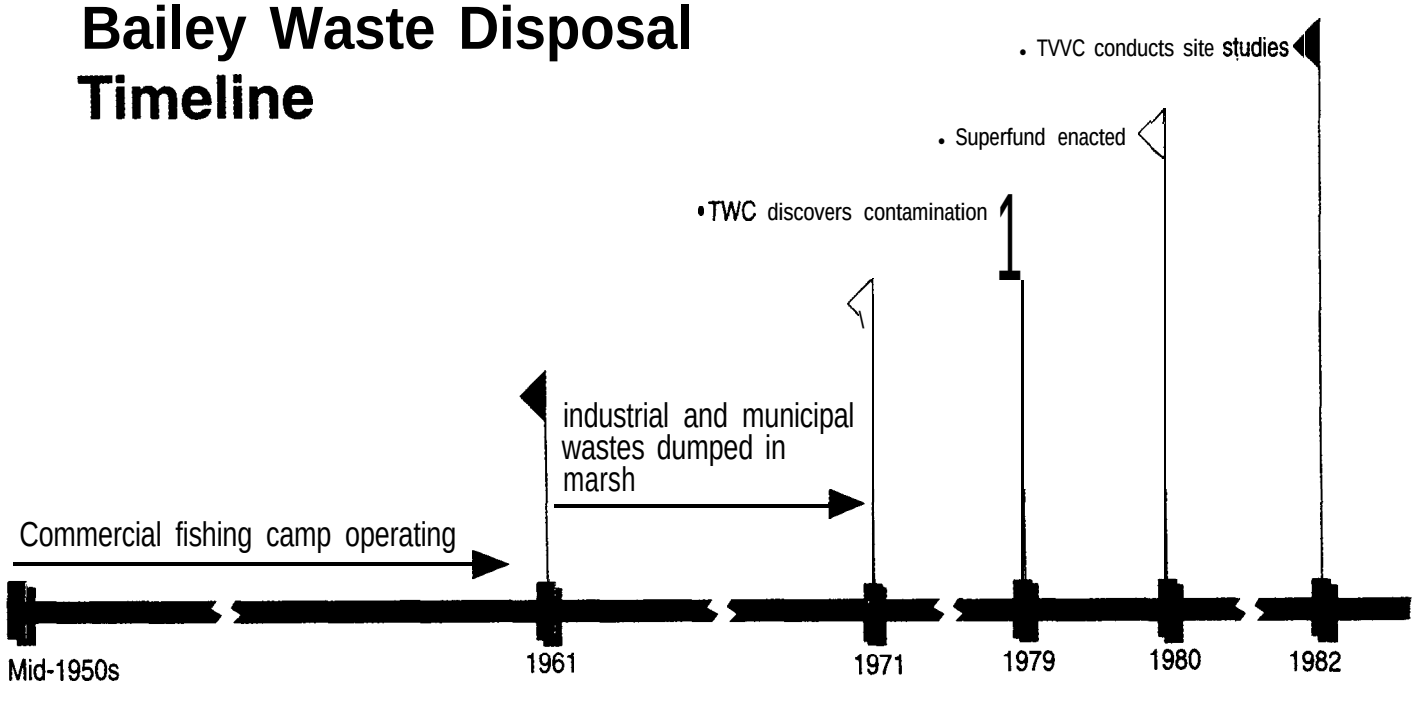
Contaminants found in shallow ground water at the site included organic chemicals such as chloroform and benzene and heavy metals including lead and arsenic.



Soil and pond sediments also were found to contain a wide variety of volatile organic compounds, polycyclic aromatic hydrocarbons, and heavy metals.

Fish, shellfish, and other estuarine animals have bioaccumulated these toxins; the pollution has had adverse effects on ecosystem habitat. Warning signs have been posted and the area is fenced off to prohibit access.

Bailey Waste Disposal Timeline



Liable Parties Undertake Cleanup

Indiscriminate Dumping Contaminates Marshlands

In the mid-1950s, the site owner (Bailey) dug two adjacent rectangular ponds on his land and stocked them with freshwater game fish. Bailey's fishing camp was popular with many Gulf Coast residents until September 1961 when the camp was destroyed by Hurricane Carla.

In the early 1960s, Bailey started accepting industrial and residential wastes. Sludge from local petrochemical industries and community trash also were dumped into levees adjacent to one of the ponds. Disposal continued until Bailey closed the site in 1971. That year, Gulf States Utilities purchased much of the property for use as an employee recreational area. The polluted conditions were largely unknown until 1979, when EPA reported that industrial wastes had been disposed of at the site.

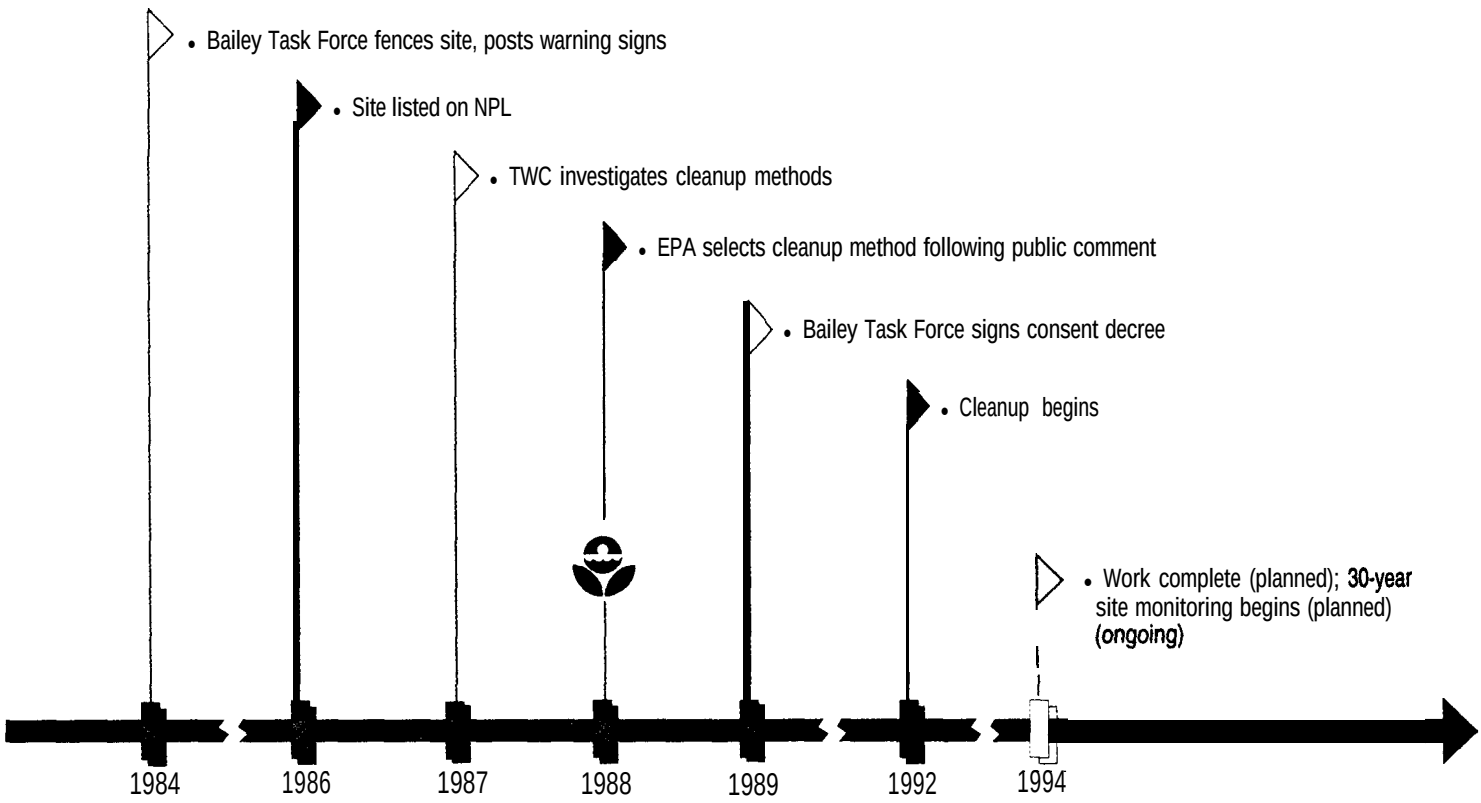
In 1980, a federally funded study by the TNRCC found 10 acres of wetlands entirely degraded by improperly disposed municipal and industrial wastes, including barrels of leaking petroleum by-products and contaminated sludge.

The wetlands are home to blue crabs, brown shrimp, killifishes, speckled sea trout, red fish, ribbed mussels, and oysters, and support countless migratory ducks and waterfowl traversing the Central Flyway.

Superfund Enables Investigation and Cleanup

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) establishing the Superfund program. Included were provisions to compel private parties to conduct cleanups at hazardous waste sites. EPA expenses incurred in investigating or cleaning up waste sites are recoverable from these parties.

In 1981, Gulf States Utilities conducted an investigation to determine the amounts and chemical characteristics of the waste in the pits. Approximately 72,000 cubic yards of industrial waste were discovered on site. The waste material had contami-



nated almost 40,000 cubic yards of underlying soil. EPA subsequently identified numerous private companies believed to be liable for remediating the site.

In November 1982, TWC conducted a preliminary assessment as to whether emergency actions were necessary to address immediate hazards. Based on TWC's findings, in May 1984, EPA ordered the waste contributors to fence the property and post warning signs to prevent access to the site.

Community members expressed support for the remedy

In June 1986, the site was listed on the National Priorities List (NPL), EPA's roster of hazardous waste sites eligible for comprehensive cleanup under the Superfund program.

In October 1987, under TWC's supervision, 10 waste contributors formed the Bailey Task Force to investigate the site and evaluate cleanup options. In November 1987, TWC and EPA held public meetings to discuss cleanup alternatives with nearby residents and to gain local input. Community members expressed support for the remedy preferred by EPA: consolidate contaminated areas, immobilize the toxic substances, and install protective covers ("caps") to encapsulate the wastes.

Cleanup Preserves Wetlands

The Bailey Waste Disposal site is divided into two major areas: a waste channel called the North Dike filled with at least 100,000 cubic yards of industrial waste and debris; and a second East Dike channel containing corroded drums of petroleum by-products and rubbery industrial and municipal debris. A series of small pits holding 1,900 cubic yards of tar-like wastes straddle the North Dike area.

Of seven cleanup options considered, EPA selected in-situ (in-place) stabilization as the safest, long-term remedy. Under this plan, contaminated sediments from the marsh and the drum disposal area were consolidated in the East Dike waste channel. Contaminants in both channels were immobilized with cement and other compounds, thereby reducing migration and toxicity. To ensure contaminants were not spread by rain during these operations, the Task Force installed eight-foot dikes.

The stabilized mixture provides strength to support two layered clay and earthen caps that will be constructed over the channels to permanently encapsulate the contaminants. Construction is scheduled for completion by 1994 and will minimize negative effects on the surrounding wetlands.

The wetlands are home to blue crabs, brown shrimp, killifishes, speckled sea trout, red fish, ribbed mussels, oysters, and migratory waterfowl

Mixed Funding Used to Encourage Settlement

In 1989, EPA negotiated a "mixed funding agreement" to pay for the Bailey Waste Disposal cleanup [see sidebar on page 61. The 10 companies of the Bailey Task Force have agreed to pay 80 percent of the $15.2 million in costs and to conduct the cleanup. This type of mixed funding agreement is called "preauthorization". Settling parties perform all of the work, provide up-front financing, and then file a claim against non-settlors for the other 20%. If that claim is unsuccessful, the preauthorized parties can ask Superfund for the remaining portion.

The Bailey Task Force began cleanup operations in August 1992. Following installation of the layered cap, the Task Force and state officials will monitor the site for 30 years to ensure the integrity of the remedy.

The Importance of the Saltwater Marsh

Wetlands have historically been viewed as mosquito-ridden wastelands, impediments to development because of their saturated and frequently flooded conditions. The importance to fish and wildlife, clean water, and flood control went unappreciated as draining and filling operations destroyed more than 60% of coastal and inland wetlands nationwide. Discharges from industries and cities, midnight dumping of toxic wastes, urban runoff, acid rain, and agricultural chemicals have polluted and degraded wetlands as well.

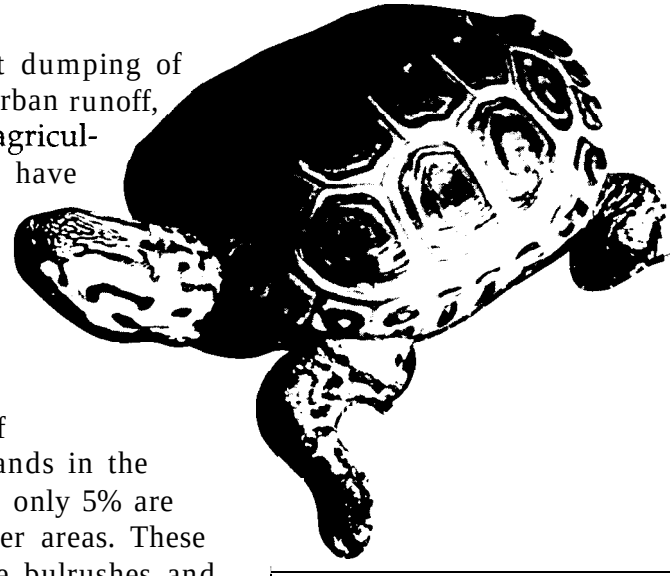


Photo courtesy of The National Aquarium

The Diamondback Terrapin, another resident of the marsh, is an excellent long-term indicator of water quality. The turtle's shell absorbs and retains many forms of pollution, particularly heavy metals.

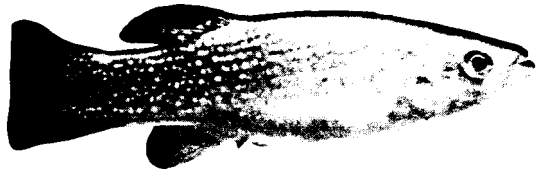


Photo courtesy of The National Aquarium

The killifish is a small minnow no more than 10 inches in length that cruises just below the surface of calm water, using an upward-tilted mouth to snatch prey, particularly mosquitoes Some are brilliantly colored, with the males taking on glorious hues during the mating season.

Of the 90 million acres of vegetated wetlands in the lower 48 states, only 5% are coastal, saltwater areas. These wetlands where bulrushes and various grasses dominate are called "marshes" and support estuarine systems on the Atlantic and Gulf coasts. Marshes are important wildlife habitats, breeding grounds, and nurseries. Ducks, geese, blackbirds, herons, egrets, bitterns, and rails use the marsh habitat for mating, nesting, brood-rearing, and for resting and feeding during migration.

Fish, crustaceans, mollusks, insects, and other estuarine animals form a complex food chain in the marsh, occupying that specialized niche between fresh water and the sea. In addition, marshes provide protected nurseries for the fingerlings of important commercial fishes such as cod, herring and mackerel.

Natural Resource Trustees Negotiate for Damages

In addition to paying for hazardous waste cleanups, private parties may be held liable for natural resource damages and environmental restitution. While EPA seeks additional funding to clean up the site, federal and state natural resource trustees are negotiating with the liable parties for damages to the surrounding marshland. Designated natural resource trustees include the National Oceanic and Atmospheric Administration, the U.S. Department of the Interior, TNRCC, the Texas Parks and Wildlife Agency, and the Texas I-and Office.

Mixed Funding Encourages Settlement

For each site listed on the NPL, EPA makes a concerted effort to identify and locate the parties responsible for site contamination. These parties are notified of their possible liability and can negotiate with EPA to reach an equitable cleanup agreement. If a settlement cannot be reached, EPA has the authority to conduct the work and later sue for as much as three times the costs. Parties that fail to cooperate face long legal battles and significant penalties.

EPA negotiations at the Bailey site were designed to secure a swift cleanup by responsible parties' who had paid their fair share of the costs. EPA attorneys used an innovative settlement strategy called "mixed funding" whereby EPA settles with fewer than all of the liable parties for a substantial portion of the cleanup. The remainder of the costs or work can be contributed by EPA, or obtained from financially viable parties who are not part of the mixed funding settlement. The three types of mixed funding are called preauthorization, mixed work, and cash out.

Mixed funding provides an incentive for cooperative parties to settle and avoids time-consuming, expensive litigation. Advance financing by the settling parties ensures prompt remediation of the site.

Success at Bailey Waste Disposal

The Bailey Task Force has immobilized hazardous wastes in two huge channels as preparation for installation of protective, encapsulating covers. This work is scheduled for completion in 1994. Fortunately, only ten acres of marshland sustained damage from the improper dumping of the 1960s. Following cleanup and construction activities, a 30-year monitoring program will ensure the long-term protection of area wetlands and the ecosystem's ability to sustain wildlife.

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